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## 8.0 GRAZING MANAGEMENT

### 8.1 Affected Environment

The cumulative assessment area primarily consists of BLM-administered and privately owned rangeland that is used for livestock grazing and provides habitat for a variety of wildlife species (see Section 5.1) (Figure 8-1). Smaller parcels of private property that have been disturbed by mine development or are used as irrigated pastures and cropland also are present within the cumulative assessment area. A large parcel of private property, located in the southern portion of Boulder Valley, is owned and operated by the ELLCO.

Portions of 16 grazing allotments are located in the cumulative assessment area (Table 8-1) including the Squaw Valley, Tuscarora/Quarter Circle S, Twenty-five, Boulder Field, T Lazy S, Hadley, Carlin Canyon, Carlin Field, McKinley, Blue Basin, Lone Mountain, Adobe, Adobe Hills, Marys Mountain, Palisade, and Horseshoe allotments. Pastures, permittee(s), permitted active grazing use for public land, percent public land, numbers and kinds of livestock, general season of use, and type of operation for each allotment area are provided in Table 8-1. These grazing allotments predominantly include BLM-administered lands although private land parcels are interspersed within some of these allotments. The McKinley and Carlin Canyon allotments primarily consist of private lands with smaller parcels of Fenced Federal Range (FFR).

The permitted active grazing use (i.e., animal unit months [AUMs]) provided in Table 8-1 is for BLM-administered land only and does not account for private lands within each allotment. Cow-calf operations are the most prevalent grazing operations in the cumulative assessment area. The Ellison Ranching Company is the only permittee that manages a ewe/lamb operation within the cumulative assessment area in addition to a cow-calf operation.

The ELLCO personnel manage grazing operations within the T Lazy S and Marys Mountain grazing allotments and private land in Boulder Valley as one general grazing unit (Gralian 1998). Approximately 4,000 cow-calf pairs are used to graze rangeland within these allotments and the private land in Boulder Valley. In addition to the cow-calf pairs, yearlings are allowed to graze in Boulder Valley if an adequate amount of forage is available on irrigated pasture and alfalfa fields during the summer. Cows and replacement heifers are wintered in Boulder Valley and typically graze residual forage in the alfalfa fields, barley fields, irrigated pastures, and native rangeland. The irrigated pastures predominantly consist of introduced grasses including smooth brome and orchardgrass.

Some of the water produced from Barrick's dewatering activities is used for irrigation and livestock watering in Boulder Valley. Water used to irrigate approximately 10,000 acres of land for the production of alfalfa, barley, and introduced pasture grasses and provide water to grazing livestock is conveyed via pipelines (Gralian 1998). Irrigated pastures that support introduced grasses are grazed annually.

A livestock exclusion fence has been constructed around the wetland area at Green, Knob, and Sand Dune springs in Boulder Valley to prevent grazing of approximately 1,000 acres of riparian vegetation.

**Table 8-1**  
**Grazing Allotments in the Cumulative Assessment Area**

| <b>Allotment</b>                      | <b>Permittee(s)<br/>or Operator(s)</b> | <b>Public Land<br/>Permitted<br/>Active Grazing<br/>Use (AUMs)<sup>1</sup></b> | <b>Percent<br/>Public Land</b>   | <b>Number(s) and<br/>Kind(s) of<br/>Livestock</b> | <b>General Season<br/>of Use</b>           | <b>Type of<br/>Operation</b>         |
|---------------------------------------|--|--|----------------------------------|---|--|--------------------------------------|
| <b>Squaw Valley</b>                   | Ellison<br>Ranching<br>Company         | 26,654   | 77                               | 7,081 cattle;<br>8,375-9,600<br>ewes; 27 horses   | March 16 to<br>November 30                 | Commercial<br>cow/calf;<br>ewe/lamb  |
|                                       |  | 142  | 100 (FFR) <sup>2</sup>           | 12 cattle   | Yearlong                                   |                                      |
| <b>Tuscarora/Quarter<br/>Circle S</b> | Van Norman<br>Ranches, Inc.            | 5,068<br>117   | 96-100<br>100 (FFR) <sup>2</sup> | 1,455 cattle;<br>2 horses                         | April 1 to<br>December 15;<br>Yearlong     | Commercial<br>cow/calf               |
|                                       | Dean and<br>Sharon Rhoads              | 8,646<br>511   | 54-100<br>100 (FFR) <sup>2</sup> | 2,202 cattle<br>850 cattle                        | April 1 to<br>December 15;<br>Yearlong     | Commercial<br>cow/calf and<br>horses |
| <b>Twenty-five</b>                    | 26 Ranch<br>Corporation                | 33,281   | 61                               | 4,530 cattle;<br>40 horses                        | Yearlong for<br>cattle and horses          | Commercial<br>cow/calf               |
|                                       |  | 849  | 100 (FFR) <sup>2</sup>           | 861 cattle  | May 1 to May 30                            |                                      |
| <b>Boulder Field</b>                  | Dean and<br>Sharon Rhoads              | 838  | 51                               | 543 cattle  | March 1 to<br>May 31                       | Commercial<br>cow/calf               |
| <b>T Lazy S</b>                       | Elko Land and<br>Livestock<br>Company  | 11,797 <sup>3</sup><br>202   | 44<br>100 (FFR) <sup>2</sup>     | 2,718 cattle;<br>350 cattle                       | February 15<br>To November 30;<br>Yearlong | Commercial<br>cow/calf               |
| <b>Hadley</b>                         | Maggie Creek<br>Ranch LP               | 4,276<br>206   | 49<br>100 (FFR) <sup>2</sup>     | 1,119 cattle<br>202 cattle                        | April 1 to<br>December 20;<br>Yearlong     | Commercial<br>cow/calf               |
| <b>Carlin Canyon FFR</b>              | Maggie Creek<br>Ranch LP               | 51   | 100                              | 34 cattle   | May 1 to June 15                           | Commercial<br>cow/calf               |
| <b>Carlin Field</b>                   | Maggie Creek<br>Ranch LP               | 2,442  | 100                              | 335 cattle  | April 1 to<br>December 20                  | Commercial<br>cow/calf               |
| <b>McKinley FFR<sup>3</sup></b>       | Maggie Creek<br>Ranch LP               | 727  | 100                              | 91 cattle   | April 1 to<br>November 29                  | Commercial<br>cow/calf               |
| <b>Blue Basin</b>                     | Heguy<br>Ranches, Inc.                 | 4,265  | 96                               | 584 cattle;<br>9 horses                           | April 1 to<br>November 15                  | Commercial<br>cow/calf               |

**Table 8-1 (Continued)**  
**Grazing Allotments in the Cumulative Assessment Area**

| <b>Allotment</b>      | <b>Permittee(s) or Operator(s)</b>                        | <b>Public Land Permitted Active Grazing Use (AUMs)<sup>1</sup></b> | <b>Percent Public Land</b>      | <b>Number(s) and Kind(s) of Livestock</b>      | <b>General Season of Use</b>   | <b>Type of Operation</b> |
|-----------------------|---|--|---------------------------------|--|--|--------------------------|
| <b>Lone Mountain</b>  | Hooper, Scott, Mark, Kirk, Lili Wolf, and Jennifer Garret | 7,202  | 64                              | 1,546 cattle;<br>2,000 cattle;<br>1,000 cattle | April 15 to July 15;<br>July 15 to September 30;<br>October 1 to November 15 | Commercial cow/calf      |
| <b>Adobe</b>          | Bruce Miller  | 526  | 86                              | 221 cattle                                     | April 16 to October 15   | Commercial cow/calf      |
| <b>Adobe Hills</b>    | Samuel Layton   | 2,208  | 61                              | 696 cattle;<br>10 horses                       | April 1 to October 30  | Commercial cow/calf      |
| <b>Marys Mountain</b> | Elko Land and Livestock Company                           | 1,408  | 51                              | 324 cattle                                     | February 15 to October 31  | Commercial cow/calf      |
| <b>Palisade</b>       | Palisade Ranch, Inc.                                      | 1,335  | 47                              | 443 cattle                                     | April 16 to October 27   | Commercial cow/calf      |
| <b>Horseshoe</b>      | Zeda, Inc.  | 1,489<br>140   | 36-46<br>100 (FFR) <sup>2</sup> | 595 cattle<br>200 cattle                       | March 10 to September 30;<br>Yearlong  | Commercial cow/calf      |

Source: BLM grazing leases.

<sup>1</sup>An animal unit month (AUM) is the amount of forage required to sustain one cow/calf pair for a 1-month period.

<sup>2</sup>FFR= Fenced Federal Range.

<sup>3</sup>1,202 AUMs have been suspended due to wild fires that occurred in 1999. This figure (11,979 AUMs) does not reflect this suspension.

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The MCWRP was implemented in 1993 and includes a total of 16 pastures, which are located in the T Lazy S allotment (see Figure 8-1). A summary of the MCWRP grazing management activities and riparian habitat conditions within these pastures is provided in Chapter 4.0, Riparian Vegetation.

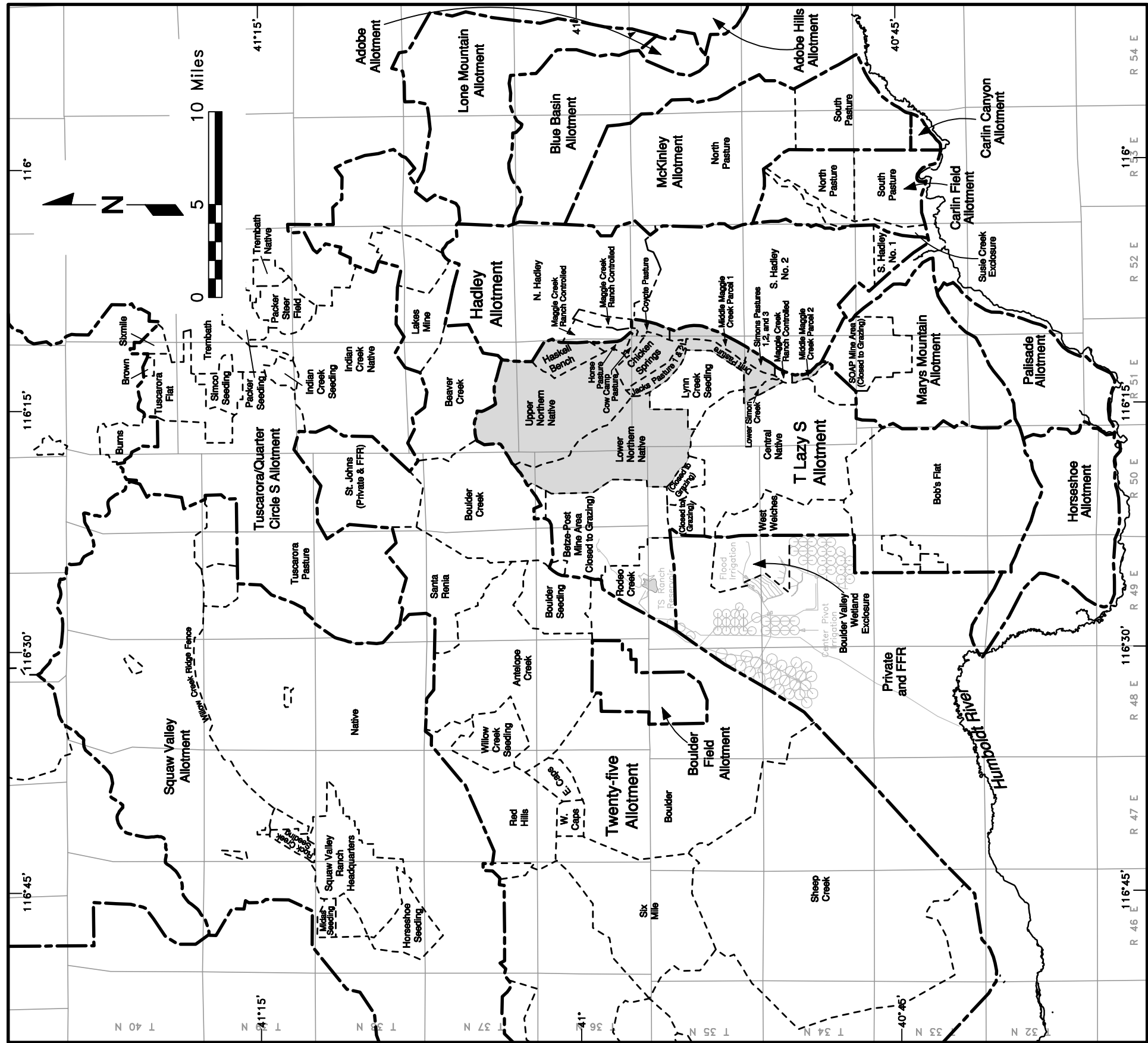
Range improvements within the cumulative assessment area include livestock water sources (e.g., improved springs, stock wells, stock ponds, water pipelines and troughs), fences, seeded rangeland, and cattle guards. Water sources are critical to grazing operations since livestock require water daily; the location of these water sources directly affects the distribution of livestock within an allotment. Figure 8-2 illustrates water-related range improvements and allotment boundaries within the cumulative assessment area. Table 8-2 lists the water-related range improvements according to grazing allotment and pasture. In addition to water-related range improvements, other livestock water features present within the cumulative assessment area include Willow Creek Reservoir, perennial creeks, natural springs, and seeps (see Chapter 3.0; Figure 3-1).

The Humboldt River is used as a source of water for livestock grazing operations on private and BLM-administered lands. Riparian and wetland vegetation associated with the river and adjacent wetlands has been subjected to grazing for many years. In the early 1990s, NDOW conducted wildlife habitat evaluations at various ranches extending from the Dunphy discharge point to Rye Patch Reservoir. Information from these evaluations indicated that the majority of the riparian habitats evaluated were in good condition although some were in fair or poor condition as a result of livestock grazing and flooding (Bradley 1992). No livestock grazing occurs in the Humboldt Sink and Carson Sink areas because they are associated with the Humboldt and Stillwater Wildlife Management Areas, respectively.

## **8.2 Impacts from Mine Dewatering and Localized Water Management Activities**

Ground water drawdown resulting from mine-related dewatering activities may affect various water sources used by livestock including improved springs, stock wells, springs, seeps, and perennial stream reaches. Table 8-2 indicates in bold type the 48 water-related range improvements that could be affected. Figures 8-2 and 8-3 illustrate the water-related range improvements and perennial waters (i.e., springs, seeps, and stream reaches) that potentially could be affected by ground water drawdown. Impacts are anticipated only for those water sources that are hydrologically connected with the regional ground water system. No impacts to water sources that obtain water from perched or localized aquifers are anticipated. Only stock ponds associated with seeps or springs connected to the regional ground water system potentially could be affected. Water troughs and pipelines associated with improved springs or stock wells also could be affected.

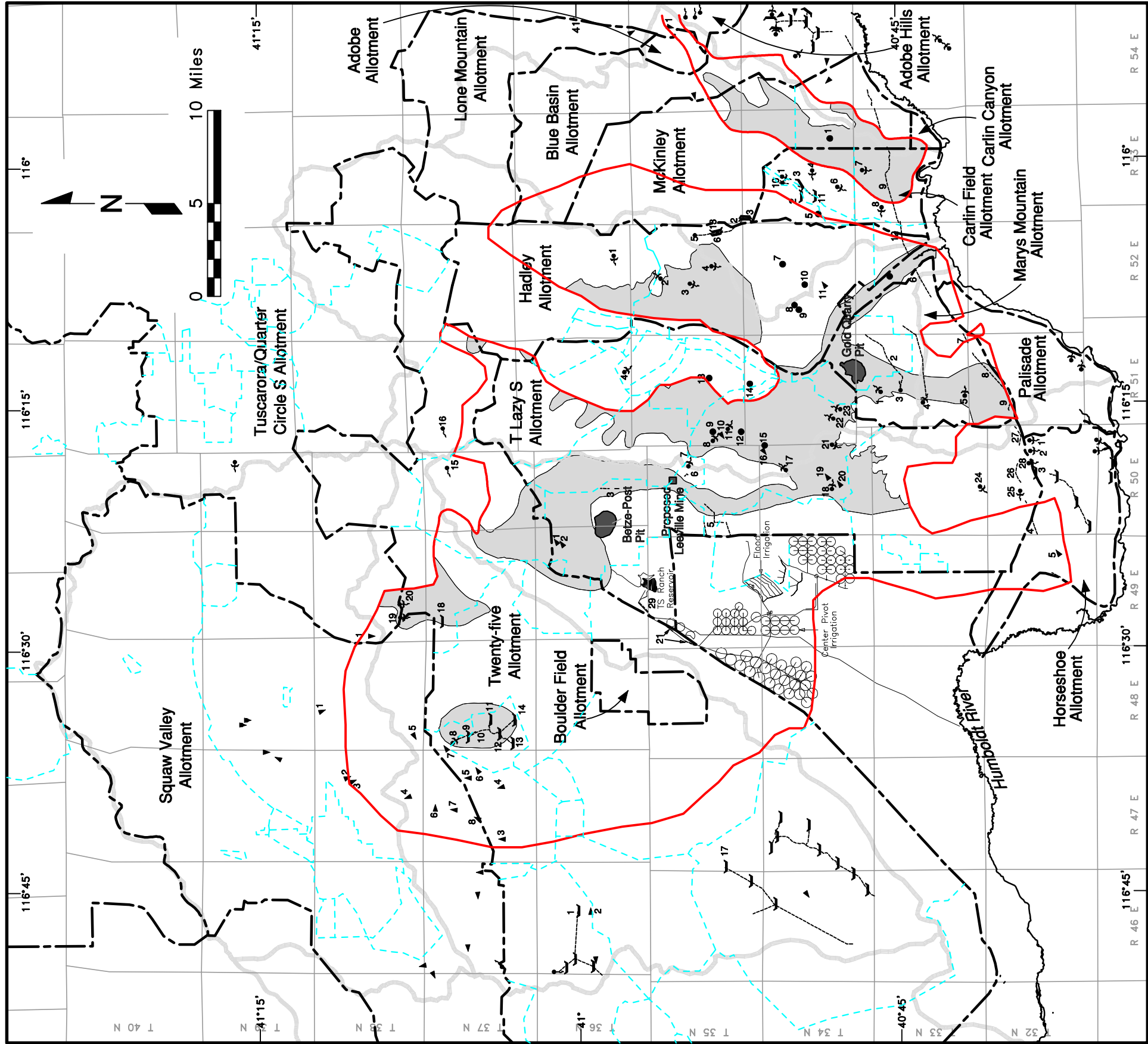
Impacts that may occur as a result of ground water drawdown include reduced flow or complete cessation of flow in springs and other water sources. If stock water availability is reduced, livestock water sources could be available for a shorter period during the grazing season and could result in the reduction of the



Legend

- Allotment Boundary
- - - Pasture Boundary
- Center Pivot Irrigation
- Maggie Creek Watershed Restoration Project Area

Figure 8-1  
Grazing Allotments and Pastures



- Legend**
- Ground Water Basin Boundary
  - Cumulative Drawdown Area ( $\geq 10$  Feet of Drawdown)
  - Allotment Boundary
  - Pasture Boundary
  - Existing Water Pipeline
  - Water Trough
  - Stock Pond
  - Spring
  - Improved Spring
  - Stock Well

- Areas where Perennial Waters could Potentially be Impacted by Drawdown<sup>1</sup>
- Areas where Perennial Waters have a Low Probability of Being Impacted by Drawdown<sup>1</sup>
- Center Pivot Irrigation

<sup>1</sup> Does not include potential impacts to perennial waters located outside the cumulative 10-foot drawdown contour.

See Table 8-2

**Figure 8-2**  
**Grazing Allotments and**  
**Water-related Range**  
**Improvements**

**Table 8-2**  
**Water-related Range Improvements in the Cumulative Assessment Area**

| Grazing Allotment          | Pastures  | Water Source Number <sup>1</sup> | Water Source Type            | Legal Description         |
|----------------------------|---|----------------------------------|------------------------------|---------------------------|
| Squaw Valley               | Native  | 1                                | Stockwater pond              | T38N, R48E                |
|                            | Native  | 2                                | Stockwater pond              | T38N, R47E                |
|                            | Native  | 3                                | Stockwater pond              | T38N, R47E                |
|                            | Native  | 4                                | Stockwater pond              | T38N, R47E                |
|                            | Native  | 5                                | Stockwater pond              | T38N, R48E                |
|                            | Native  | 6                                | Stockwater pond              | T37N, R47E                |
|                            | Native  | 7                                | Stockwater pond              | T37N, R47E                |
|                            | Native  | 8                                | Stockwater pond              | T37N, R47E                |
|                            |   |                                  |                              |                           |
| Tuscarora/Quarter Circle S | Tuscarora   | 1                                | Stockwater pond              | T38N, R49E                |
|                            |   |                                  |                              |                           |
| Twenty-five                | Unknown   | 1                                | Water pipeline and trough    | T36N, R46E                |
|                            | Six Mile  | 2                                | Stockwater pond              | T36N, R46E                |
|                            | Red Hills   | 3                                | Stockwater pond              | T37N, R47E                |
|                            | Red Hills   | 4                                | Stockwater pond              | T37N, R47E                |
|                            | Red Hills   | 5                                | Stockwater pond              | T37N, R47E                |
|                            | Red Hills   | 6                                | Stockwater pond              | T37N, R47E                |
|                            | Red Hills   | 7                                | Stockwater pond              | T37N, R48E                |
|                            | Willow Creek Seeding  | 8                                | Improved spring              | T37N, R48E                |
|                            | Willow Creek Seeding  | 9                                | Water trough                 | T37N, R48E                |
|                            | Willow Creek Seeding  | 10                               | Water pipeline               | T37N, R48E                |
|                            | Willow Creek Seeding  | 11                               | Water trough                 | T37N, R48E                |
|                            | Willow Creek Seeding  | 12                               | Water trough                 | T37N, R48E                |
|                            | Willow Creek Seeding  | 13                               | Water trough                 | T37N, R48E                |
|                            | Willow Creek Seeding  | 14                               | Water trough                 | T37N, R48E                |
|                            | Boulder Creek   | 15                               | Spring                       | T37N, R50E                |
|                            | Beaver Creek  | 16                               | Spring                       | T37N, R51E                |
|                            | Sheep Creek   | 17                               | Water trough and pipeline    | T35N, R46E;<br>T35N, R47E |
|                            | Santa Reina   | 18                               | Water trough                 | T37N, R49E                |
|                            | Santa Reina   | 19                               | Improved spring              | T38N, R49E                |
|                            | Santa Reina   | 20                               | Improved spring              | T38N, R49E                |
|                            | Boulder   | 21                               | Water pipeline               | T35N, R49E                |
| Boulder Field <sup>4</sup> | (No water-related range improvements located in the cumulative assessment area) |                                  |                              |                           |
|                            |   |                                  |                              |                           |
| T Lazy S                   | Betze Post Mine Area  | 1                                | Stockwater pond <sup>2</sup> | T36N, R49E                |
|                            | Betze Post Mine Area  | 2                                | Stockwater pond <sup>2</sup> | T36N, R49E                |
|                            | Betze Post Mine Area  | 3                                | Water pipeline               | T36N, R49E                |
|                            | Chicken Springs   | 4                                | Improved spring <sup>3</sup> | T36N, R51E                |

**Table 8-2 (Continued)**  
**Water-related Range Improvements in the Cumulative Assessment Area**

| <b>Grazing Allotment</b> | <b>Pastures</b>           | <b>Water Source Number<sup>1</sup></b> | <b>Water Source Type</b>                       | <b>Legal Description</b> |
|--------------------------|---------------------------|--|--|--------------------------|
|                          | <b>Central Native</b>     | <b>5</b>                               | <b>Water pipeline</b>                          | <b>T35N, R50E</b>        |
|                          | Leeville Mine Area        | 6                                      | Water pipeline                                 | T35N, R50E               |
|                          | Leeville Mine Area        | 7                                      | Improved spring <sup>3</sup>                   | T35N, R50E               |
|                          | <b>Central Native</b>     | <b>8</b>                               | <b>Improved spring<sup>3</sup></b>             | <b>T35N, R51E</b>        |
|                          | <b>Central Native</b>     | <b>9</b>                               | <b>Stock well<sup>3</sup></b>                  | <b>T35N, R51E</b>        |
|                          | <b>Central Native</b>     | <b>10</b>                              | <b>Stockwater pond<sup>3</sup></b>             | <b>T35N, R51E</b>        |
|                          | <b>Central Native</b>     | <b>11</b>                              | <b>Improved spring<sup>3</sup></b>             | <b>T35N, R51E</b>        |
|                          | <b>Central Native</b>     | <b>12</b>                              | <b>Stock well<sup>3</sup></b>                  | <b>T35N, R51E</b>        |
|                          | Lynn Creek Seeding        | 13                                     | Stock well <sup>3</sup>                        | T35N, R51E               |
|                          | Lynn Creek Seeding        | 14                                     | Stock well <sup>3</sup>                        | T34N, R51E               |
|                          | <b>Central Native</b>     | <b>15</b>                              | <b>Stock well<sup>3</sup></b>                  | <b>T35N, R51E</b>        |
|                          | <b>Central Native</b>     | <b>16</b>                              | <b>Stockwater pond<sup>3</sup></b>             | <b>T34N, R50E</b>        |
|                          | <b>Central Native</b>     | <b>17</b>                              | <b>Improved spring<sup>3</sup></b>             | <b>T34N, R50E</b>        |
|                          | <b>Central Native</b>     | <b>18</b>                              | <b>Improved spring<sup>3</sup></b>             | <b>T34N, R50E</b>        |
|                          | <b>Central Native</b>     | <b>19</b>                              | <b>Stockwater pond</b>                         | <b>T34N, R50E</b>        |
|                          | <b>Central Native</b>     | <b>20</b>                              | <b>Stockwater pond</b>                         | <b>T34N, R50E</b>        |
|                          | <b>Central Native</b>     | <b>21</b>                              | <b>Improved spring<sup>3</sup></b>             | <b>T34N, R50E</b>        |
|                          | <b>Central Native</b>     | <b>22</b>                              | <b>Improved spring<sup>3</sup></b>             | <b>T34N, R51E</b>        |
|                          | <b>Central Native</b>     | <b>23</b>                              | <b>Improved spring<sup>3</sup></b>             | <b>T34N, R51E</b>        |
|                          | Bob's Flat                | 24                                     | Improved spring <sup>3</sup>                   | T33N, R50E               |
|                          | Bob's Flat                | 25                                     | Improved spring <sup>3</sup>                   | T32N, R50E               |
|                          | Bob's Flat                | 26                                     | Water pipeline                                 | T32N, R50E               |
|                          | Bob's Flat                | 27                                     | Water pipeline                                 | T32N, R50E               |
|                          | Bob's Flat                | 28                                     | Improved spring <sup>3</sup>                   | T32N, R50E               |
|                          | Rodeo Creek               | 29                                     | Water pipeline                                 | T36N, R49E               |
|                          |                           |  |  |                          |
| Hadley                   | North Hadley              | 1                                      | Improved spring <sup>3</sup>                   | T36N, R52E               |
|                          | South Hadley No. 2        | 2                                      | Improved spring <sup>3</sup>                   | T35N, R52E               |
|                          | <b>South Hadley No. 2</b> | <b>3</b>                               | <b>Improved spring<sup>3</sup></b>             | <b>T35N, R52E</b>        |
|                          | <b>South Hadley No. 2</b> | <b>4</b>                               | <b>Improved spring<sup>3</sup></b>             | <b>T35N, R52E</b>        |
|                          | <b>South Hadley No. 2</b> | <b>5</b>                               | <b>Stock well<sup>5</sup></b>                  | <b>T35N, R52E</b>        |
|                          | <b>South Hadley No. 2</b> | <b>6</b>                               | <b>Water pipeline and trough<sup>3,6</sup></b> | <b>T35N, R52E</b>        |
|                          | <b>South Hadley No. 2</b> | <b>7</b>                               | <b>Stock well<sup>3,5</sup></b>                | <b>T34N, R52E</b>        |
|                          | <b>South Hadley No. 2</b> | <b>8</b>                               | <b>Stock well<sup>3,5</sup></b>                | <b>T34N, R52E</b>        |
|                          | <b>South Hadley No. 2</b> | <b>9</b>                               | <b>Stock well<sup>3,5</sup></b>                | <b>T34N, R52E</b>        |
|                          | <b>South Hadley No. 2</b> | <b>10</b>                              | <b>Stock well<sup>3,5</sup></b>                | <b>T34N, R52E</b>        |
|                          | South Hadley No. 2        | 11                                     | Stockwater pond                                | T34N, R52E               |
|                          | South Hadley No. 1        | 12                                     | Water pipeline                                 | T33N, R52E               |



**Table 8-2 (Continued)**  
**Water-related Range Improvements in the Cumulative Assessment Area**

| <b>Grazing Allotment</b>    | <b>Pastures</b>   | <b>Water Source Number<sup>1</sup></b> | <b>Water Source Type</b>           | <b>Legal Description</b> |
|-----------------------------|---|--|------------------------------------|--------------------------|
|                             | <b>South Hadley No. 2</b>   | <b>13</b>                              | <b>Water trough<sup>6</sup></b>    | <b>T35N, R52E</b>        |
| Carlin Canyon <sup>4</sup>  | (No water-related range improvements located in cumulative assessment area) |  |                                    |                          |
| Carlin Field                | North Carlin Field  | 1                                      | Improved spring <sup>3</sup>       | T34N, R53E               |
|                             | North Carlin Field  | 2                                      | Water trough and pipeline          | T34N, R53E               |
|                             | North Carlin Field  | 3                                      | Water trough                       | T34N, R53E               |
|                             | North Carlin Field  | 4                                      | Improved spring <sup>3</sup>       | T34N, R53E               |
|                             | <b>North Carlin Field</b>   | <b>5</b>                               | <b>Stock well<sup>3,5</sup></b>    | <b>T34N, R53E</b>        |
|                             | North Carlin Field  | 6                                      | Improved spring <sup>3</sup>       | T34N, R53E               |
|                             | <b>South Carlin Field</b>   | <b>7</b>                               | <b>Improved spring<sup>3</sup></b> | <b>T33N, R53E</b>        |
|                             | South Carlin Field  | 8                                      | Improved spring <sup>3</sup>       | T33N, R53E               |
|                             | <b>South Carlin Field</b>   | <b>9</b>                               | <b>Water pipeline</b>              | <b>T33N, R53E</b>        |
|                             | North Carlin Field  | 10                                     | Stock well                         | T34N, R53E               |
| McKinley                    | <b>South Pasture</b>  | <b>1</b>                               | <b>Stock well<sup>3</sup></b>      | <b>T34N, R53E</b>        |
|                             | <b>North Pasture</b>  | <b>2</b>                               | <b>Water trough<sup>6</sup></b>    | <b>T34N, R53E</b>        |
|                             | <b>North Pasture</b>  | <b>3</b>                               | <b>Water trough<sup>6</sup></b>    | <b>T34N, R53E</b>        |
| Lone Mountain               | (No water-related range improvements located in cumulative assessment area) |  |                                    |                          |
| Blue Basin                  | (No water-related range improvements located in cumulative assessment area) |  |                                    |                          |
| Adobe                       | (No water-related range improvements located in cumulative assessment area) |  |                                    |                          |
| Adobe Hills                 |   | 1                                      | Stockwater pond                    | T35N, R54E               |
| Marys Mountain <sup>4</sup> |   | 1                                      | Improved spring <sup>3</sup>       | T33N, R51E               |
|                             |   | 2                                      | Water pipeline                     | T33N, R51E               |
|                             |   | 3                                      | Spring                             | T33N, R51E               |
|                             |   | 4                                      | Improved spring <sup>3</sup>       | T33N, R51E               |
|                             |   | 5                                      | Improved spring <sup>3</sup>       | T33N, R51E               |
|                             |   | 6                                      | Water pipeline                     | T33N, R52E               |
|                             |   | 7                                      | Water pipeline                     | T33N, R51E               |
|                             |   | 8                                      | Water pipeline                     | T32N, R51E               |
|                             |   | 9                                      | Water pipeline                     | T32N, R51E               |

**Table 8-2 (Continued)**  
**Water-related Range Improvements in the Cumulative Assessment Area**

| Grazing Allotment      | Pastures  | Water Source Number <sup>1</sup> | Water Source Type            | Legal Description |
|------------------------|---|----------------------------------|------------------------------|-------------------|
| Palisade               | (No water-related range improvements located in cumulative assessment area) |                                  |                              |                   |
|                        |   |                                  |                              |                   |
| Horseshoe <sup>4</sup> |   | 1                                | Improved spring <sup>3</sup> | T32N, R50E        |
|                        |   | 2                                | Improved spring <sup>3</sup> | T32N, R50E        |
|                        |   | 3                                | Water trough <sup>3</sup>    | T32N, R50E        |
|                        |   | 4                                | Water pipeline               | T34N, R50E        |
|                        |   | 5                                | Stockwater pond              | T34N, R49E        |

<sup>1</sup>See Figure 8-2.

<sup>2</sup>BLM 1996a.

<sup>3</sup>BLM 1993b.

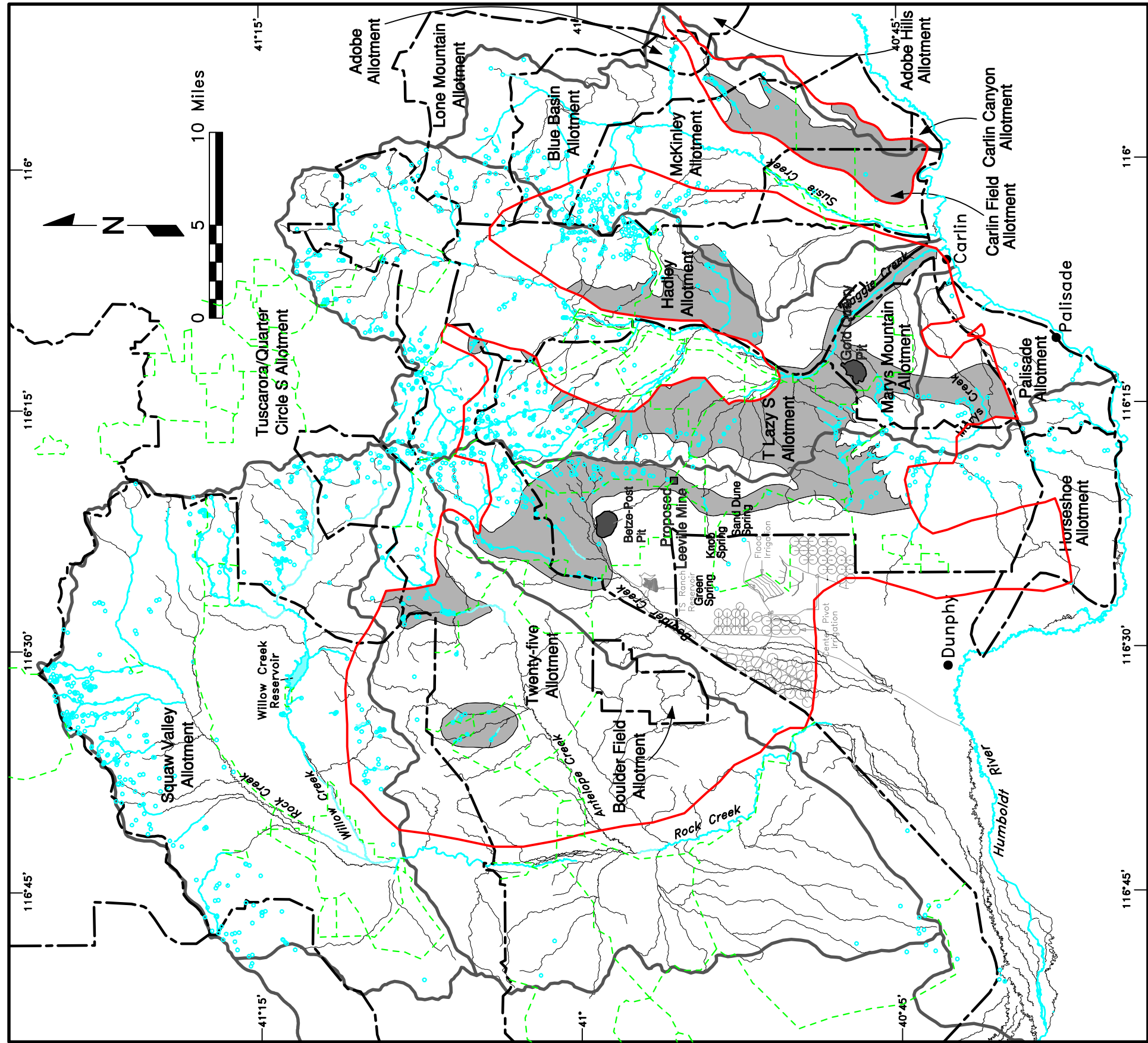
<sup>4</sup>Allotments do not have pastures.

<sup>5</sup>Stock wells that could be affected by ground water drawdown if the water source for these wells is the regional aquifer.

<sup>6</sup>These water-related range improvements may be affected if the stock well (i.e., range improvement number 5) in the Hadley Allotment is affected by ground water drawdown.

Note: **BOLD** indicates water-related range improvements potentially affected by ground water drawdown.

Sources: Master Title Plats; BLM 1993b; BLM 1996a.



Legend

- Ground Water Basin Boundary
  - Cumulative Drawdown Area (≥10 Feet of Drawdown)
  - Allotment Boundary
  - Pasture Boundary
  - Stream
  - Discontinuous Flowing Stream Reach
  - Perennial Steams
  - Spring and Seeps
  - Center Pivot Irrigation
  - Areas where Perennial Waters could Potentially be Impacted by Drawdown<sup>1</sup>
  - Areas where Perennial Waters have a Low Probability of Being Impacted by Drawdown<sup>1</sup>
- <sup>1</sup> Does not include potential impacts to perennial waters located outside the cumulative 10-foot drawdown contour.

Figure 8-3  
Perennial Waters Within  
Grazing Allotments Potentially  
Affected by Drawdown

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permitted active grazing use within a grazing allotment. The long-term loss of water sources would result in the reduction or loss of permitted active grazing use within a grazing allotment if alternative water sources are not present within the vicinity of the affected water sources. Drawdown impacts could be localized to water sources within one or several pastures within an allotment. The loss of the majority or all water sources within these pastures would likely affect livestock distribution, forage utilization, and grazing management operations.

Reductions in the number and distribution of water sources and reductions in permitted active grazing use would affect grazing permittees by forcing them to find additional rangeland for livestock or to reduce their herd size within the affected pasture or allotment to appropriate stocking levels as determined by the BLM. Permittees would likely try to find additional pasture to accommodate their grazing operations, otherwise the permittees would likely be subjected to economic losses.

Specific impacts to perennial creeks, seeps, and springs within the cumulative assessment area are described in Section 3.2.4. Some of the water sources (i.e., water-related range improvements, unimproved springs, and perennial stream reaches) in the Twenty-five, T Lazy S, Hadley, Carlin Field, McKinley, and Marys Mountain allotments potentially could be affected by ground water drawdown. Water sources in the Squaw Valley, Tuscarora/Quarter Circle S, Boulder Field, Carlin Canyon, Blue Basin, Lone Mountain, Adobe, Adobe Hills, Palisade, or Horseshoe allotments have a low probability of being affected by ground water drawdown.

### **8.2.1 Twenty-five Allotment**

Ten water-related range improvements, including six water troughs, one water pipeline, and three improved springs, potentially could be affected by ground water drawdown (see Table 8-2). Seven of the 10 improvements are located in the Willow Creek Seeding pasture, and the remaining improvements are located in the Santa Reina pasture. The potential long-term loss of all of the improvements in the Willow Creek Seeding pasture could result in the potential long-term loss of permitted active grazing use within the pasture. This pasture does not include any additional water sources such as perennial creeks or reservoirs. The potential long-term loss of improvements and other water sources in the western portion of the Santa Reina pasture may result in the long-term loss of permitted active grazing use or affect forage utilization. Approximately 50 percent of the perennial water sources in this pasture are located in areas that could potentially be affected by drawdown. Perennial reaches of Squaw and North Antelope creeks would be alternative water sources for livestock in the eastern portion of the pasture.

### **8.2.2 T Lazy S Allotment**

Approximately 50 percent of the water-related range improvements and approximately 40 percent of the perennial water sources within the allotment could be affected by ground water drawdown. Sixteen water-related range improvements, including four stockwater ponds, two water pipelines, three stock wells, and seven improved springs, could be affected by ground water drawdown (see Table 8-2). One water pipeline is located in the Betze-Post Pit area, which is closed to grazing. Fifteen improvements are located in the Central Native pasture and could be affected by ground water drawdown. In addition, the majority of the

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perennial water sources within the pasture could be affected by ground water drawdown. The potential long-term loss of water sources could result in the long-term loss of permitted active grazing use within the pasture or affect forage utilization.

Other pastures with perennial water sources (e.g., unimproved springs and perennial stream reaches) that are located in areas that potentially could be affected by drawdown include the Lower Northern Native, Upper Northern Native, Bob's Flat, and Lynn Creek Seeding pastures. Approximately 50 percent of the perennial water sources within the Lower Northern Native pasture are located in areas that potentially could be affected by drawdown; these water sources occur in the eastern and western portions of the pasture. Less than 10 percent of the perennial water sources within the Lower Northern native pasture are located in an area that could be affected by drawdown; these water sources occur in the central portion of the pasture. Approximately 20 percent of the perennial water sources within the Lower Northern Native pasture are located in areas that potentially could be affected by drawdown; these water sources occur in the northern portion of the pasture. A small segment of Lynn Creek, which is located within the Lynn Creek Seeding pasture, potentially could be affected by drawdown.

Isolated seeps and springs in the higher elevations of the Tuscarora Mountains would likely be unaffected by ground water drawdown and would provide natural water sources for livestock in the central portion of the allotment.

### **8.2.3 Hadley Allotment**

Nine water-related range improvements, including five stock wells, two improved springs, one water pipeline, and one trough and pipeline, could be affected by ground water drawdown (see Table 8-2). All of these improvements are located in the South Hadley No. 2 pasture. If the water level were lowered beyond the well intake zone, or below the pump setting, the stock wells would no longer provide water for livestock use unless the pump setting or wells were deepened. The potential long-term loss of these water sources would result in the long-term loss of permitted active grazing use or affect forage utilization within the pasture. One improved spring and one stockwater pond would be available for livestock use in the South Hadley No. 2 pasture if the other water sources are not available. Alternative water sources, such as East Cottonwood Creek and Maggie Reservoir, may be available for livestock use. The perennial reach of East Cottonwood Creek, located in the South Hadley No. 2 pasture, could be reduced by ground water drawdown. Less than 10 percent of the perennial water sources in the North Hadley pasture could be affected by ground water drawdown.

### **8.2.4 Carlin Field Allotment**

Three water-related range improvements, including one improved spring, one stock well, and one water pipeline, could be affected by ground water drawdown (see Table 8-2). The stock well is located in the North Carlin Field pasture, and the improved spring and water pipeline are located in the South Carlin Field pasture. The stock well is located inside the area that could be affected by ground water drawdown; therefore, the well may be affected as discussed previously for wells in the Hadley Allotment. Other water sources (i.e., improved springs, troughs, and a stock well) within the North Carlin Field pasture would be

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available for livestock use since they would not be affected by ground water drawdown. The potential long-term loss of an improved spring and a water pipeline within the Carlin Field South pasture would not likely affect the permitted active grazing use or forage utilization within the pasture. One improved spring would likely be unaffected by ground water drawdown and would likely provide an adequate supply of water within the small pasture.

### **8.2.5 McKinley Allotment**

Three water-related range improvements, including one stock well and two troughs, could be affected by ground water drawdown (see Table 8-2). All of these improvements are located in the South pasture. Several unimproved springs located in the southern portion of the North pasture potentially could be affected by drawdown. The potential long-term loss of these water sources may result in the potential long-term loss of permitted active grazing use or affect forage utilization within the pastures.

### **8.2.6 Marys Mountain Allotment**

Seven water-related range improvements, including three improved springs, three water pipelines, and one natural spring, could be affected by ground water drawdown (see Table 8-2). Approximately 50 percent of the unimproved springs and perennial reaches within the allotment could be affected by ground water drawdown. The potential long-term loss of these water sources may result in the potential long-term loss of permitted active grazing use or affect forage utilization within the pasture. Additional water sources within the allotment, such as Marys and James creeks, may be available for livestock use.

## **8.3 Impacts to the Humboldt River and Its Tributaries Used for Discharge Conveyance**

During the period of mine dewatering discharge, slightly increased water levels within the Humboldt River floodplain would likely increase the areal extent of herbaceous wetlands immediately adjacent to the river channel. Forage production and the carrying capacity of these narrow areas also would likely increase temporarily. Increased water levels also may increase the availability of water for livestock use. Discharge waters reaching the Humboldt and Carson sinks would not affect grazing management since livestock grazing is not allowed within these areas.

After mine dewatering discharges cease, reduced baseflows resulting from combined drawdown effects could decrease the extent of herbaceous wetlands used for grazing immediately adjacent to the river. Newmont has committed to mitigation (BLM 1993d) of impacts to surface water rights along the river, which should mitigate this potential impact.